CLAIMS:

1. A surface roughening method, comprising:

moving a cutting tool along a longitudinal axis of an article, wherein the cutting tool comprises a radial cutting head, and wherein the radial cutting head comprises a cutting blade with a leading edge and a trailing edge;

rotating the cutting tool along the longitudinal axis such that the leading edge of the cutting blade forms a first pattern of peaks and valleys on a surface of the article; and

applying stress to the peaks in the first pattern with the trailing edge of the cutting blade to create fracture surfaces and form a second pattern, wherein the second pattern comprises lands at the fracture surfaces separated by grooves, wherein the grooves in the second pattern correspond to the valleys in the first pattern, and wherein

a first line drawn along a first wall of the grooves in the second pattern, and a second line drawn along a second wall of the grooves in the second pattern form an acute angle, and wherein a bisector of the acute angle lies above a line drawn normal to the surface of the article.

2. The method of claim 1, wherein an entire cross section of each peak along the longitudinal axis of the article is fractured by applying the stress to each peak in a non-axial direction.

3. The method of claim 1, wherein each of the grooves in the second pattern is assymmetrical.

4. The method of claim 1, wherein the leading edge of the cutting blade further comprises a second cutting edge, and wherein the second cutting edge forms at least one concave region in each valley of the first pattern, and wherein each concave region corresponds to a notch in the second wall of each of the grooves in the second pattern.

5. The method of claim 1, wherein the trailing edge of the cutting head further roughens each of the fracture surfaces to form roughened lands in the second pattern.

6. The method of claim 1, wherein the article defines a cylindrical body.

7. The method of claim 6, wherein the cylindrical body comprises an interior surface of the article.

8. The method of claim 7, wherein the first pattern comprises a substantially helical pattern of peaks and valleys, and wherein the second pattern comprises a substantially helical pattern of lands and grooves.

9. The method of claim 1, wherein the article comprises a nonferrous metal.

10. The method of claim 1, further comprising applying a coating overlaying the first and second patterns on the surface of the article.

11. The method of claim 10, wherein applying the coating comprises at least one of chemical vapor deposition, plasma deposition, thermal spray coating, or fluid spray coating.

12. The method of claim 10, wherein the coating comprises an abrasion resistant material.

13. The method of claim 10, wherein the coating comprises at least one of a ceramic material or a ferrous metal.

14. The method of claim 13, wherein the ceramic material comprises one or more of silicon nitride, silicon carbide, aluminum oxide, silicon dioxide, and titanium nitride.

15. The method of claim 13, wherein the ferrous metal comprises one or more of titanium, tungsten, cobalt, nickel, iron, and aluminum.

16. A surface roughening system, comprising:

means for roughening a surface comprising a radial leading edge means for cutting a first pattern of peaks and valleys into the surface, and a trailing edge means for fracturing the peaks;

means for feeding the means for roughening along a longitudinal axis of the article comprising the surface;

means for rotating the means for roughening about the longitudinal axis of the article;

wherein rotating the means for roughening while moving the means for roughening relative to the surface creates a second pattern comprising a plurality of lands created by fracturing the peaks of the first pattern, with each land separated by grooves corresponding to the valleys in the first pattern, and

wherein a first line drawn along a first wall of the grooves in the second pattern and a second line drawn along a second wall of the grooves in the second pattern form an acute angle, and wherein a bisector of the acute angle lies above a line drawn normal to the surface of the article.

17. A cutting tool, comprising:

a rotary cutting head comprising a cutting blade, wherein the cutting blade comprises a planar surface, wherein the planar surface intersects with a rake surface to form a leading cutting edge, wherein the leading cutting edge is shaped to cut a first pattern of peaks and valleys into a surface of a article, wherein the valleys comprise a first wall and a second wall, wherein a first line drawn along the first wall and a second line drawn along the second wall form an acute angle, and wherein a bisector of the acute angle lies above a line drawn normal to the surface; and

wherein the planar surface slopes upward from the leading cutting edge to a trailing edge of the cutting blade, and wherein the trailing edge forms a fracture surface by applying a stress to the peaks of the first pattern and form a second pattern, wherein the second pattern comprises lands at the fracture surfaces separated by grooves, wherein the grooves in the second pattern correspond to the valleys in the first pattern.

18. The cutting tool of claim 17 wherein the leading cutting edge of the cutting tool further comprises a second cutting edge, and wherein the second cutting edge comprises a substantially triangular cross section that cuts a concave region in the valleys of the first pattern, and wherein the concave region corresponds to a notch in the second wall of the grooves in the second pattern.

19. The cutting tool of claim 18, wherein the second cutting edge is above the planar surface on the leading edge of the cutting blade.

20. The cutting tool of claim 17, wherein the planar surface slopes downward at an obtuse angle with respect to a plane of a body of the cutting head.

21. The cutting tool of claim 17, wherein the line drawn along the first wall overlies the line drawn normal to the surface of the article.

22. The cutting tool of claim 17, wherein the line drawn along the first wall is above the line drawn normal to the surface of the article.

23. The cutting tool of claim 17, wherein the line drawn along the first wall is below the line drawn normal to the surface of the article.

24. The cutting tool of claim 17, further comprising an end face along the first planar surface, wherein the end face comprises a roughening pattern of protrusions and depressions, and wherein the roughening pattern further roughens the lands of the second pattern after the trailing edge of the cutting blade removes the peaks of the first pattern.

25. The cutting tool of claim 17, wherein the rotary cutting head comprises at least one of a metal, a ceramic, or diamond.

26. The cutting tool of claim 25, wherein the cutting blade comprises at least one metal selected from titanium, tungsten, cobalt, nickel, iron, and aluminum.

27. The cutting tool of claim 25, wherein the cutting blade comprises at least one ceramic material selected from silicon nitride, silicon carbide, aluminum oxide, silicon dioxide, and titanium nitride.

28. A cylindrical body having a machine roughened surface, wherein the machine roughened surface comprises a substantially helical pattern of grooves separated by lands corresponding to substantially uniform roughened surface regions, wherein the cross section of the grooves is substantially asymmetrical, and wherein each groove further comprises a notch.

29. The body of claim 28, wherein a first line drawn along a first wall of each of the groove in a first direction, and a second line drawn along a second wall of each of the grooves in a second direction form an acute angle, and wherein a bisector of the acute angle lies above a line drawn normal to the surface of the cylindrical body.

30. The body of claim 28, wherein the machine roughened surface is an interior surface of the cylindrical body.

31. The body of claim 28, wherein the cylindrical body comprises a nonferrous metal.

32. The body of claim 31, further comprising a coating applied to the machine roughened surface.

33. The body of claim 32, wherein the coating comprises an abrasion resistant material.

34. The body of claim 32, wherein the coating comprises at least one of a ceramic material or a ferrous metal.

35. The body of claim 34, wherein the ceramic material comprises one or more of silicon nitride, silicon carbide, aluminum oxide, silicon dioxide, and titanium nitride.

36. The body of claim 34, wherein the ferrous metal comprises one or more of titanium, tungsten, cobalt, nickel, iron, and aluminum.

37. The body of claim 28, wherein the machine roughened surface comprises an inner surface of a cylindrical bore in a cylinder block of an internal combustion engine.

38. The body of claim 37, further comprising a coating applied to the inner surface overlaying the lands and the grooves.

39. The body of claim 38 wherein the coating comprises an abrasion resistant material.

40. The body of claim 38, wherein the coating comprises at least one of a ceramic material or a ferrous metal.

41. The body of claim 40, wherein the ceramic material comprises one or more of silicon nitride, silicon carbide, aluminum oxide, silicon dioxide, and titanium nitride.

42. The body of claim 40, wherein the ferrous metal comprises one or more of titanium, tungsten, cobalt, nickel, iron, and aluminum.

43. The body of claim 28, wherein the machine roughened surface comprises an outer surface of a cylindrical liner inserted within a cylinder bore of a cylinder block of an internal combustion engine.

44. The article of claim 43, wherein the cylindrical liner comprises an outer peripheral surface comprising the machine roughened surface by forming thereon the pattern of lands and grooves, and joined to an inner surface of the cylinder bore.